

Claims

1. Safety binding for a ski or a snowboard as universal mounting interface plate comprising a top-part, a bottom-part and a top- and bottom-part connecting separable safety release mechanism, wherein the top-part provides a multiple attachment so that any kind of ski- or snowboard-binding is mountable on the same top-part, and wherein the bottom-part is mountable in any position and angle on the ski or snowboard, and the multiple attachment on the top-part has the measures of the standard 4x4 and 3D mounting pattern and the safety binding and interface plate further comprises a disc, with an inside diameter less than 40 mm.
2. Safety binding comprising a top-part of an interface plate of a top- and bottom-part connecting separable safety release mechanism, which is exchangeable and is mountable under a boot sole, and the top-part of the safety release mechanism is placed in an opening of a technically changed and so reinforced, stiffened and with a high-back substituting support tool provided such as a standard I-Spine for snowboard soft boots for a regular snowboard safety binding without interface-plate.
3. Safety binding comprising a regular binding, wherein the interface plate is exchangeable or interchangeable in a binding and said binding has in its width an enlarged high-back without firm side-stabilizations, and at the enlarged high-back are provided moveable textile tapes as side-stabilizations, which allow the boot to do a rotation release and that high-back has a turning- axis behind and below the heel of the boot for attaching it to the bottom- and/or top-part of the interface plate respectively to the bottom-part of the interchanged binding so that the high-back can be secured in different angles.
4. Safety binding and boot, comprising a top-part of an interface plate for attachment to a boot and wherein underneath two adjustable sleds are attached with rubber-elastic spacers for the different adjustments for the flex of the ski and that the place for the center of pivot between the rubber-elastic spacers are changeable respectively adjustable in respect of the length direction of the foot respectively boot and wherein these rubber-elastic spacers are also usable as shoe soles when the interface plate is mounted under a boot and this safety

binding or interface plate with a release mechanism and rubber spacers is integrated directly into the boot sole or is attached directly by an attachment with screws or levers to a boot sole, wherein for the attachment by screws to the boot is used for the front toe and back heel sole attachment a two times 3 vice-versa length-hole pattern with 38, 40 or 43 mm hole distance and a 4 length-hole pattern with 38, 40 or 43 mm hole distance and the length of the length-holes is 20-50 mm and another way of attaching the release-mechanism to boots with or without a strengthening boot support like the standard in boots integrated I-Spine uses such a special pattern of holes arranged in a rectangle of here defined measures of 60 mm length x 50 mm width and 55 mm length x 55 mm width and 40 mm length x 67.5 mm width and an other combination of these lengths with widths.

5. Safety binding comprising a top-part of an interface plate, which is a freely movable or freely pivotable plate by and on the release mechanism, which top-part can be turned in 180° degree for connecting it in opposite direction on the lower-part and the center of pivot in Z-direction of this top-part is in the middle of the top-plate or placed shifted away from the center of the top-plate or its place is in the length-direction shiftable, place adjustable and so located, that the inside- and outside-rotation torques of the foot is alike the same or the highest or the lowest generatable or settable torque and the angle of the boot on the top-plate is settable 0°-15°-30° in respect to the bottom part and/or ski according to the normal feet angle and at the interface plate as well as when uses as ski-binding the toe- and heel boot attachment has adjustable sledges for that the boot is adjustable for the proper normal natural position of the feet in outward and inward angle position.
6. Safety binding comprising an interface plate, which is attached to the boot and which has a hole or opening in about the size or diameter of the release mechanism for pressing any snow or ice upwards out of the plate through the openings in the middle and anywhere in the soles of the boots.
7. Safety binding comprising a release mechanism system in the interface plate with the pins pressing into the cavities, which are not only in a plane, but the pins are rotatable in the cavities in Y-axis forward and backward either around an axis going through the middle of the pins round head or through a central

axis or an axis that is going through the top of the pin and/or through two or more other locations of the axis and in multiple variations thereof.

8. Safety binding comprising an interface plate with a release mechanism system, which is mountable under any boot that is released by a lever with the ski-pole and locked again by this lever, when the user is pressing down the boot with the plate on the binding on the ski, blade or snowboard.
9. Safety binding, wherein the release mechanism is integrated and firm connected and especially put under any free-style- or other step-in- or plate-binding and the interface plate is integrated, connected and or joint together to the free-style and any other step-in or plate- snowboard- or ski-binding.
10. Safety binding according to claim 1, wherein for a ski or a snowboard as universal mounting interface plate a step-in mechanism is mounted on a releasing top- or bottom- kick plate with a fastening lever as guide for this step-in mechanism and an elastic retention element keeps this lever in the locked position and the lever is on both sides left and right as well as rear and front and that lever is shaped that it gives a guide to the boot for stepping in and the same lever is used for release respectively opening the step-in mechanism.
11. Safety binding according to claim 1, wherein the top-part is a freely movable and freely pivotable plate by the release mechanism as on a foot-and-socket joint, which is attached to the bottom-part, which itself is firmly mounted on the snowboard, ski or a plate, so that on a lever and a measure device attached to that freely movable or freely pivotable top-part the forces and torques of the foot-ankle-joint of the user can be measured at least in X-, Y- and Z-direction and the rotation torque measure device in and under the interface plate, which is directly attached to the boot and foot is of electronic and mechanic kind and there is a wire-lever provided, which can also be used as pull-out lever of the engaging element in the cavity of the sole of the snowboard boot of an interchangeable binding version.
12. Safety binding according to claim 1, wherein one or a plurality of stop-brake levers are provided on said top-part or bottom-part of the interface, and said stop-break levers are pressing or triggering automatically a stop-element on the

bottom part into its stopping position after release of the locking mechanism or pull-out of or before the step-in into the binding with the boot.

13. Safety binding according to claim 12, wherein in the top-part at least one hole or opening is provided for the stop-element, which is attached to the bottom-part so that this stop-element is stepped down through this hole or opening of the top-part and that is triggered when releasing or stepped out.
14. Safety binding according to claim 12, wherein to the interface especially on the bottom-part a stop-brake is provided that at any set angle of the interface and binding in a range of 0° degree to 90° degree to the edge of the snowboard and for any width of the snowboard of 10 cm – 20 cm – 30 cm a release of the stop-break is possible and riding on the edge is not obstructed when the stop-break is in not released position.
15. Safety binding comprising a loop provided to the top-part and at least to the bottom-part, which is lockable by a lock as theft-lock so that the spring box lock cannot any more be connected to the engaging element respectively the top-part is not any more be connectable with the bottom-part and another loop is in the head of a screw, that is fixing the binding to the snowboard so that the bottom-part can not any more get disconnected from the snowboard, ski or skwal and the loop has an individual alphanumeric or numeric number or a barcode, which is saved on an Internet server with the name of the owner of the interface for controlling.
16. Safety binding comprising an electro-magnetic light-reflector, a transmitter or a microchip tag attached at the bottom or top part of the interface-plate or binding for sending a signal for localization of the snowboard, skwal, blade or ski when lost in the powder snow, or lost by wind, fog and whether or at night or by theft and for that a wire or cable is attachable and going through the lockable loop and will send an alarm on a mobile-phone and internet-platform if the cable or loop is interrupted and for power supply a generator/dynamo/piezso-crystal is integrated into the binding and also other electronic devices like lamps, flashes and alarms are attached to the interfaces and bindings.

17. Safety binding according to claim 1, wherein the top-part and bottom part is changed in its width with attachable wings, wherein the wings are part of a plate to be mounted under and/or around the safety binding and the safety binding is manufactured by a firm construction with a provided cutting-line so that this width of the safety binding is reduceable by cutting or sowing off its own wing or such a wing and around, left or right or under the safety release binding is attached or mounted a power plate for fashion, biomechanical or other functional (power control, -transferal, change of release torques) purposes.
18. Safety binding according to claim 1, wherein a fastening respectively suspension plate with respect to its longitudinal direction is possible to be adjusted to be set angled off by an angle of about $\pm 10^\circ$, and/or with respect to an axis extending at right angles to the longitudinal direction is possible to be adjusted to be set angled off by an angle of about -3° to $+10^\circ$ from the top-part of the interface and said angle, and said angles respectively, are adjustable by two setting screws and by rubber-elastic spacer washers and wherein to this fastening respectively suspension plate a rubber-elastic tape is provided as step in guide and help for the boot.
19. Safety binding according to the claim 1, wherein the insert for adjusting the spring force and the force onto the releasing bolts in order to set a trigger threshold for release of the locking mechanism in any release direction, such as for rotation in a longitudinal direction, is set to a maximum level, where no release is possible and the release function of the locking mechanism is blocked in one or two or any variation of the three release directions.
20. Safety binding according to the claim 4, wherein the universal mounting plate has two lateral pins for attaching it to a ski- or snowboard- touring-binding respectively and that has an axis integrated for the fastening to a ski- or snowboard- touring-binding or to a snow-boot.
21. Safety binding according to claim 4, wherein the top-part is a freely movable or freely pivotable plate by the release mechanism as on a foot-and-socket joint, which is attached to the bottom-part, which itself is firmly mounted on the snowboard, ski or a plate, so that on a lever and a measure device attached to that freely movable or freely pivotable top-part the forces and torques of the

foot-ankle-joint of the sportsman is measurable at least in X-, Y- and Z-direction and the rotation torque measure device in and under the interface plate, which is directly attached to the boot and foot is electronic and mechanic and there is a wire-lever provided, which can also be used as pull-out lever of the engaging element in the cavity of the sole of the snowboard boot of an interchangeable binding version.

22. Safety binding according to claim 2, wherein one or a plurality of stop-brake levers are provided on said top-part or bottom-part of the interface, and said stop-break levers are pressing or triggering automatically a stop-element on the bottom part into its stopping position after release of the locking mechanism or pull-out of or before the step-in into the binding with the boot.
23. Safety binding according to claim 4, wherein one or a plurality of stop-brake levers are provided on said top-part or bottom-part of the interface, and said stop-break levers are pressing or triggering automatically a stop-element on the bottom part into its stopping position after release of the locking mechanism or pull-out of or before the step-in into the binding with the boot.
24. Safety binding according to claim 9, wherein one or a plurality stop-brake levers are provided on said top-part or bottom-part of the interface, and said stop-break levers are pressing or triggering automatically a stop-element on the bottom part into its stopping position after release of the locking mechanism or pull-out of or before the step-in into the binding with the boot.
25. Safety binding according to claim 23, wherein in the top-part at least one hole or opening is provided for the stop-element, which is attached to the bottom-part so that this stop-element is stepped down through this hole or opening of the top-part and that is triggered when releasing or stepped out.
26. Safety binding according to claim 23, wherein to the interface especially on the bottom-part a stop-brake is provided that at any set angle of the interface and binding in a range of 0° degree to 90° degree to the edge of the snowboard and for any width of the snowboard of 10 cm – 20 cm – 30 cm a release of the stop-break is always possible and riding on the edge is not obstructed when the stop-break is in not released position.

27. Safety binding according to claim 2, wherein a fastening respectively suspension plate with respect to its longitudinal direction is adjustable to be set angled off by an angle of about $\pm 10^\circ$, and/or with respect to an axis extending at right angles to the longitudinal direction is adjustable to be set angled off by an angle of about -3° to $+10^\circ$ from the top-part of the interface and said angle, and said angles respectively, are adjustable by two setting screws and by rubber-elastic spacer washers and wherein to this fastening respectively suspension plate a rubber-elastic tape is provided as step in guide and help for the boot.